



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,772	11/20/2003	Kazutaka Uchitomi	04558.077001	8376

7590 03/24/2006

JONATHAN P. OSHA  
OSHA & MAY L.L.P.  
1221 MCKINNEY STREET SUITE 2800  
HOUSTON, TX 77010

EXAMINER
----------

RHEE, JANE J

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/717,772

Applicant(s)

UCHITOMI ET AL.

Examiner

Jane Rhee

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                                            |                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/17/04/5/20/05/1/27/06</u> | 6) <input type="checkbox"/> Other: ____                                                |

**DETAILED ACTION*****Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 16-19, are rejected under 35 U.S.C. 102(b) as being anticipated by Miyasaka (6416902).

As to claim 1 and 16, Miyasaka, discloses a non-aqueous secondary battery comprising a positive electrode comprising a lithium-containing complex oxide as an active material, a negative electrode and a non-aqueous electrolyte (col. 2 lines 14-19) wherein the lithium-containing complex oxide represented by general formula  $\text{Li}_{1+x+\alpha}\text{Ni}_{(1-x-y+\delta)/2}\text{Mn}_{(1-x-y-\delta)/2}\text{M}_y\text{O}_2$  (where  $0 \leq x \leq 0.15$ ,  $-0.05 \leq x + \alpha \leq 0.2$ ,  $0 \leq y \leq 0.4$ ;  $-0.1 \leq \delta \leq 0.1$  (when  $0 \leq y \leq 0.2$ ) or  $-0.24 \leq \delta \leq 0.24$  (when  $0.2 < y \leq 0.4$ ); and M is at least one element selected from the group consisting of Mg, Ti, Cr, Fe, Co, Cu, Zn, Al, Ge, Zr and Sn (col. 2 lines 41-60), the lithium-containing complex oxide comprising secondary particles formed of flocculated primary particles, wherein the primary particles have a mean particle diameter of 0.3 to 3  $\mu\text{m}$  (col. 12 line 31) and the secondary particles have a mean particle diameter of 5 to 20  $\mu\text{m}$  (col. 12 line 32). As to claim 2 and 17, Miyasaka discloses wherein  $x \leq 0.05$  and  $x + \alpha \leq 0.05$  (col. 2 lines 41-60). As to claim 3 and 18, Miyasaka discloses that in the general formula,  $y > 0$  and M is one or more elements containing at least Co (col. 2 line 50). As to claim 4 and 19, Miyasaka discloses wherein

Art Unit: 1745

the lithium-containing complex oxide has as BET specific surface area of 0.3 to 2m<sup>2</sup>/g (col. 5 line 58-61).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14-15, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka (6416902).

Miyasaka discloses the complex oxide described above. As to claims 14 and 29, Miyasaka fail to disclose that the wherein the secondary particles having a mean particle diameter of 5-20um are contained in a ratio of 60% to 90% by weight with respect to a whole of the complex oxide and the secondary particles having a mean particle diameter of not greater than 3/5 of the mean particle diameter of 5-20um are contained in a ratio of 10% to 40% by weight with respect to the whole of the complex oxide.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the secondary particles having a mean particle diameter of 5-20um are contained in a ratio of 60% to 90% by weight with respect to a whole of the complex oxide and the secondary particles having a mean particle diameter of not greater than 3/5 of the mean particle diameter of 5-20um are contained in a ratio of 10% to 40% by weight with respect to the whole of the complex oxide, since

Art Unit: 1745

it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in absence of unexpected results. In re Boesch, 617, F.2d 272, 205 USPQ 215.

As to claims 15 and 30, Miyasaka discloses wherein  $x \leq 0.05$  and  $x + \alpha \leq 0.05$  (col. 2 lines 41-60).

3. Claims 5-13, 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka in view of Pynenburg et al. (54298900) and in further view of Gorge et al. (6015447).

Miyasaka discloses the non-aqueous lithium ion secondary battery described above. As to claim 5 and 20, Miyasaka et al. fail to disclose a lithium-containing complex oxide B having a mean particle diameter smaller than the mean particle diameter of the secondary particles of the lithium-containing complex oxide A. As to claim 7 and 22, Miyasaka fail to disclose wherein the lithium-containing complex oxide B is contained in a ratio of 10% to 40% by weight with respect to a whole of the lithium-containing complex oxide A and the lithium-containing complex oxide B. As to claim 8 and 23, Miyasaka fail to disclose that the lithium-containing complex oxide B of secondary particles formed of flocculated primary. As to claim 13 and 27, Miyasaka fail to disclose that the lithium-containing complex oxide B is represented by general formula  $\text{Li}_{1+a+b}\text{R}_{1-a}\text{O}_2$  (where  $0 \leq a \leq 0.05$  and  $-0.05 \leq a+b \leq 0.05$ , and R is at least one element selected from the group consisting of Mg, Ti, Cr, Fe, Co, Cu, Zn, Al, Ge, Zr and Sn).

Art Unit: 1745

As to claim 6 and 21, Miyasaka discloses wherein  $x \leq 0.05$  and  $x + \alpha \leq 0.05$  (col. 2 lines 41-60). As to claim 9, Miyasaka discloses that in the general formula,  $y > 0$  and M is one or more elements containing at least Co (col. 2 line 50). As to claim 10, discloses wherein the lithium-containing complex oxide has as BET specific surface area of 0.3 to  $2\text{m}^2/\text{g}$  (col. 5 line 58-61). As to claim 12 and 28, Miyasaka discloses that the Ni, Mn and the Co of the lithium-containing complex oxide have a valence of 2, 4, and 3 respectively (col. 2 lines 45-54 when  $x=1$ ,  $y=0.58$ ,  $z=0.42$ ).

Pynenburg et al. teaches a lithium-containing complex oxide B is represented by general formula  $\text{Li}_{1+a+b}\text{R}_{1-a}\text{O}_2$  (where  $0 \leq a \leq 0.05$  and  $-0.05 \leq a+b \leq 0.05$ , and R is at least one element selected from the group consisting of Mg, Ti, Cr, Fe, Co, Cu, Zn, Al, Ge, Zr and Sn (col. 3 line 15) for the purpose of providing a mixture of metal oxides that is a smooth voltage profile during discharge, substantially without inflections and discontinuities (col. 3 lines 16-19). As to wherein the lithium-containing complex oxide B is contained in a ratio of 10% to 40% by weight with respect to a whole of the lithium-containing complex oxide A and the lithium-containing complex oxide B, Pynenburg et al. teaches that lithium containing complex A and B mixture is in the weight ratio from 1:10 to 10:1 (col. 7 line 59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Miyasaka with a lithium-containing complex oxide B is represented by general formula  $\text{Li}_{1+a+b}\text{R}_{1-a}\text{O}_2$  (where  $0 \leq a \leq 0.05$  and  $-0.05 \leq a+b \leq 0.05$ , and R is at least one element selected from the group consisting of Mg, Ti, Cr, Fe, Co, Cu, Zn, Al, Ge, Zr and Sn, wherein the lithium-containing complex

Art Unit: 1745

oxide B is contained in a ratio of 10% to 40% by weight with respect to a whole of the lithium-containing complex oxide A and the lithium-containing complex oxide B in order to provide mixture of metal oxides that is a smooth voltage profile during discharge, substantially without inflections and discontinuities (col. 3 lines 16-19).

As to the lithium-containing complex oxide B of secondary particles formed of flocculated primary, Gorge et al. teaches cobalt metal powders are of secondary particles formed of flocculated primary particles for the purpose of distinguishing good flow properties (col. 1 lines 55-64). Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Miyasaka with lithium-containing complex oxide B of secondary particles formed of flocculated primary in order to distinguish good flow properties taught by Gorge et al. (col. 1 lines 55-64).

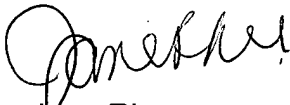
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jane Rhee  
March 14, 2006



PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER